Exact Low-Order Classical Moments in Collision-Induced Bands by Linear Rotors: CO2-CO2

Titre	Exact Low-Order Classical Moments in Collision-Induced Bands by Linear Rotors: CO2-CO2
Type de publication	Article de revue
Auteur	Chrysos, Michel [1], Kouzov, A.-P. [2], Egorova, N.-I. [3], Rachet, Florent [4]
Editeur	American Physical Society
Type	Article scientifique dans une revue à comité de lecture
Année	2008
Langue	Anglais
Date	2008/04/04
Numéro	13
Volume	100
Titre de la revue	Physical Review Letters
ISSN	0031-9007
Résumé en anglais	Exact and general analytic expressions are reported for the integrated intensity and the width of collision-induced absorption (CIA) and collision-induced scattering (CIS) bands by gases of centrosymmetric linear molecules. These expressions provide significant insight and allow assignment of partial second moments to the degrees of freedom of the colliding molecules. The expressions are applied to ambient CO2, whose collisional spectra are reputed to be useful probes for terrestrial and planetary atmospheres. Compelling evidence of the substantial role of hitherto missing polarization and polarizability mechanisms is provided and is in remarkable agreement with experimental observation. Our findings allow the long-overdue simple interpretation of CIA and CIS by CO2-CO2 without the need to resort to short-range interactions to offset the discrepancies between theory and experiment.
URL de la notice	http://okina.univ-angers.fr/publications/ua1970 [5]
DOI	10.1103/PhysRevLett.100.133007 [6]
Lien vers le document	http://dx.doi.org/10.1103/PhysRevLett.100.133007 [6]

Liens

[1] http://okina.univ-angers.fr/michel.chrysos/publications
[2] http://okina.univ-angers.fr/publications?f[author]=2657
[3] http://okina.univ-angers.fr/publications?f[author]=2658
[4] http://okina.univ-angers.fr/florent.rachet/publications
[5] http://okina.univ-angers.fr/publications/ua1970
[6] http://dx.doi.org/10.1103/PhysRevLett.100.133007